(August 3, 2015)

Furnishing St. Piling

Welding for steel pipe piling shall conform to AWS D1.1/D1.1M, latest edition, Structural Welding Code, and Section 6-03.3(25), except that all weld filler metal shall be low hydrogen material selected from Table 4.1 in AASHTO/AWS D1.5M/D1.5:2010 Bridge Welding Code.

Welding and joint geometry for the seam, whether it be longitudinal or helical, shall be qualified in accordance with Clause 4, Qualification, of the AWS D1.1/D1.1M, latest edition, Structural Welding Code. In addition, charpy V-notch (CVN) testing in accordance with Clause 4, Part D, of the AWS D1.1/D1.1M, latest edition, Structural Welding Code, shall be performed. CVN testing shall include five tests at 0°F. The acceptance threshold for the five samples shall meet an average value of 20-foot-pounds CVN for the set of test coupons and a minimum value of 15-foot-pounds CVN for any individual test coupon. The Contractor may submit documentation of prior qualification to the Engineer to satisfy this requirement.

Dimensional tolerances shall conform to the material specification that the steel pipe piling is manufactured under, and, at a minimum, the following requirements:

1. Out-of-roundness shall be within 1-percent of the nominal outside diameter.

2. Deviation from a straight line, parallel to the centerline of the pile, shall not exceed 0.001 times the length of the pile.

3. The maximum radial offset of the strip/plate edges shall be 1/8-inch. The offset shall be transitioned with a taper weld and the slope shall not be less than a 1 in 2.5 taper.

4. The bead height of weld reinforcement shall not exceed 3/16-inch.

5. Misalignment of weld beads for double-sided welded pipe shall not exceed 1/8-inch.

6. The wall thickness shall not be less than 95-percent or greater than 110-percent of the specified nominal thickness.

All seams and skelp splices shall be complete penetration welds. Skelp splices in spiral welded (helical seam) pipe shall not be located within 12 inches of a girth shop or field weld.

All skelp splices shall be 100 percent radiographically or ultrasonically inspected in accordance with either API 5L Annex E Section E.4 or E.5, or Table 6.2 and Clause 6 Part E, F or G in AWS D1.1/D1.1M, latest edition, Structural Welding Code. Additionally, 10-percent of the total length of seam welds for both longitudinal and helical welded pipe, and one pipe diameter length of seam centered on any skelp splice intersection, shall be randomly inspected as specified above. If repairs are required in more than 10-percent of the welds examined, additional inspection shall be performed. The additional inspection shall be made on both sides of the repair for a length equal to 10-percent of the length of the pipe outside circumference. If

repairs are required in more than 10-percent of welds examined in the second sample, 100-percent of the entire seam on the pile shall be inspected.

All seams and splices shall be 100 percent visually inspected in accordance with the acceptance criteria for statically loaded non-tubular connections in Table 6.1 of the AWS D1.1/D1.1M, latest edition, Structural Welding Code. Repairs shall conform to Section 5.26 of the AWS D1.1/D1.1M, latest edition, Structural Welding Code, using approved repair and weld procedures.

Each length of steel pipe pile shall be marked with paint stencil, no closer than six inches to the end of the pipe, with the name of the manufacturer, material specification and grade of pipe, steel heat number, nominal pipe diameter, and wall thickness.